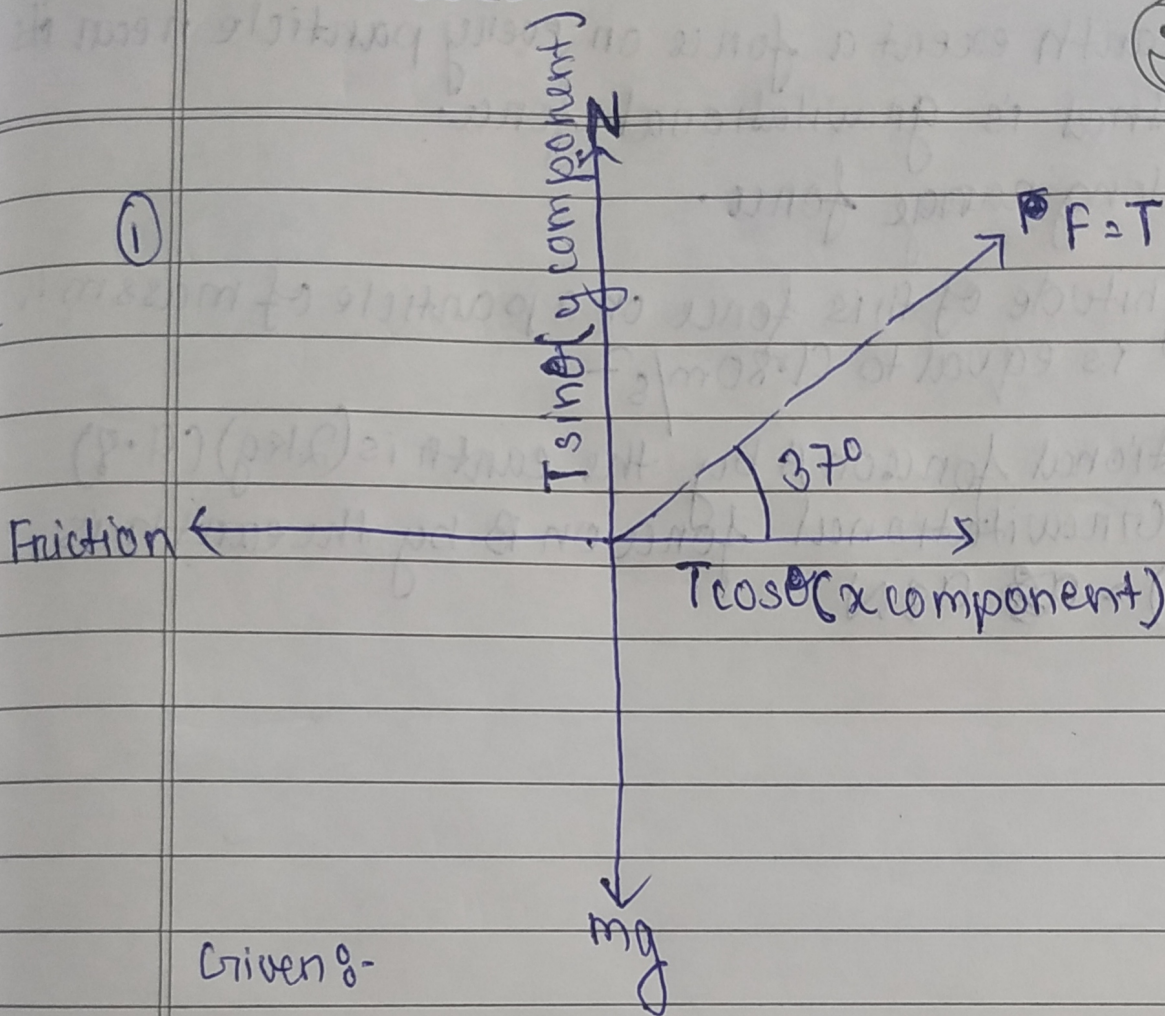
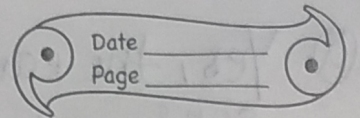


Worksheet



Given :-

$$\text{Tension} = 100 \text{ N}$$

$$\text{Weight} = 40.0 \text{ kg}$$

$$T \cos \theta = \text{Friction}$$

$$100 (\cos 37) = \text{Friction}$$

$$100 (0.76) = \text{Friction}$$

$$76 \text{ N} = \text{Friction}$$

$$\text{Force} = \text{Mass} \times \text{acceleration}$$

$$\text{Force} = \Rightarrow 100 \text{ N} = 40$$

$$100 \cos 37^\circ = 40 \times \text{acceleration}$$

$$76 \text{ N} = 40 a$$

$$a = \frac{76}{40} = 1.9 \text{ m/s}^2$$

$$\text{Normal force} = mg + T \sin \theta$$

$$\text{Normal force} = (40 \times 9.8) + (100) (\sin 37)$$

$$= 392 + (100)(0.64)$$

$$= 392 + (-64)$$

$$= 392 - 64 = 328 \text{ N}$$

2a) Yes, the earth exerts a force on every particle near its surface that is gravitational force.

b) It is a long range force.

c) The magnitude of this force on a particle of mass m is mg which is equal to 1.80 m/s^2 .

d) Gravitational force on A by the earth is $(2 \text{ kg})(9.8)$
 $= 19.6 \text{ N}$. Gravitational force on B by the earth is
 $10(9.8) = 98 \text{ N}$.

① ②